WHAT IS CLAIMED

1. A method for determining a screen frequency and magnitude estimation of an image signal, the method comprising the operations of:

(a) estimating in one or more channels each exhibiting different sensitivities for providing high quality frequency and magnitude estimation;

(b) combining one or more frequency estimation from independent channels to create frequency magnitude estimation.

2. The method of Claim 1 wherein a channel exhibiting highest sensitivity derives the frequency estimate.

3. The method of Claim 1 wherein operation (a) comprises the steps of:

detecting extrema in an image signal and a second filter output signal via a min-max texture detector included in each of frequency detection modules, and outputting respective detected signals; and

filtering the respective detected signals via respective cascades of averaging filters and outputting respective filtered detected signals.

4. The method of Claim 3 wherein the operation of detecting extrema is performed by using a structure pattern within a window, the structure pattern having two distinct sets of pixels arranged such that, for any line segment crossing the structure pattern, each of the two sets of pixels does not lie entirely on one side of the line segment.

5. The method of Claim 4 wherein operation (a) further comprises the operation of searching for a maximum value within a window in the output of

each of the special filters via a module included in each of the frequency detection modules.

6. The method of Claim 5 wherein operation (a) further comprises the operations of sub-sampling and interpolating.

7. The method of Claim 1 wherein operation (a) further comprises the operations of sub-sampling and dual interpolation having a maximum unit and a contrast unit and further filtering.

8. The method of Claim 1 wherein operation (a) comprises the operations of combining the outputs of one or more frequency detection modules and producing the frequency magnitude estimate signal, via a magnitude estimate module included in the screen estimate module.

9. The method of Claim 8 wherein operation (a) comprises the operation of processing the contrast signal, the frequency estimate signal and the frequency estimate magnitude signal via at least one piecewise linear function block included in the pixel control module to produce the first control signal which includes information regarding which of the filter output signals are to be blended and the proportion of blending.

10. The method of Claim 9 wherein operation (a) comprises the operation of processing the frequency estimate signal, the frequency estimate magnitude signal and a lowpass filtered version of the image signal, via a neutral logic block included in the pixel control module to produce a third control signal for controlling the neutrality of a current pixel.

11. A screen frequency and magnitude estimator comprising:

(a) means for estimating in one or more channels each exhibiting different sensitivities for providing high quality frequency and magnitude estimation;

(b) means for combining one or more frequency estimation from independent channels to create frequency magnitude estimation.

12. A screen frequency and magnitude estimator according to Claim 11 wherein a channel exhibiting highest sensitivity derives the frequency estimate.

13. A screen frequency and magnitude estimator according to Claim 11 wherein detecting extrema in an image signal and a second filter output signal via a min-max texture detector included in each of frequency detection modules, and outputting respective detected signals; and

filtering the respective detected signals via respective cascades of averaging filters and outputting respective filtered detected signals.

14. A screen frequency and magnitude estimator according to Claim 13 wherein the operation of detecting extrema is performed by using a structure pattern within a window, the structure pattern having two distinct sets of pixels arranged such that, for any line segment crossing the structure pattern, each of the two sets of pixels does not lie entirely on one side of the line segment.

15. A screen frequency and magnitude estimator according to Claim 14 wherein operation (a) further comprises the operation of searching for a maximum value within a window in the output of each of the special filters via a module included in each of the frequency detection modules.

16. A screen frequency and magnitude estimator according to Claim 15 wherein operation (a) further comprises the operations of sub-sampling and interpolating.

17. A screen frequency and magnitude estimator according to Claim 16 wherein operation (a) further comprises the operations of sub-sampling and dual interpolation having a maximum unit and a contrast unit and further interpolation and filtering for one or more of frequency channels.

18. A screen frequency and magnitude estimator according to Claim 17 wherein operation (a) comprises the operations of combining the outputs of one or more frequency detection modules and producing the frequency magnitude estimate signal, via a magnitude estimate module included in the screen estimate module.

19. A screen frequency and magnitude estimator comprising:

(a) means for estimating in one or more channels each exhibiting different sensitivities for providing high quality frequency and magnitude estimation;

(b) means for combining one or more frequency estimation from independent channels to create frequency magnitude estimation wherein a channel exhibiting highest sensitivity derives the frequency estimate.

20. A screen frequency and magnitude estimator according to Claim 19 further comprising:

means for providing a control signal, based on the input signal contrast, to hold the frequency estimate signal stable even near edges of halftone areas, using a maximum frequency unit and a dual interpolation unit.